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Výzkumné studie

HOW SLOVAK MOTHERS VIEW CHILD VACCINATION: FOCUS GROUP ANALYSIS

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ABSTRACT

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Objectives. The number of vaccination refusals is growing. A total of 1,291 vaccination refusals were recorded in Slovakia in August 2012. By August 2013, the number of refusals had risen to 2,595. The aim of this study is to investigate the issues and heuristics that play a role in parental decision-making on children's vaccinations.

Method. The authors conducted four focus groups among mothers of children under the age of 5 (N=34). The data were transcribed and analysed using qualitative analysis software and thematic analysis.

Results. First-time mothers often reported being under pressure to make vaccination decisions within the stressful context of new-born check-ups. Under such conditions decision making is often subject to biases and driven by fear. In this paper, the heuristics that may play a role in the decision-making process are described.

Discussion. Parents attempt to balance the potential risks of having their child vaccinated or

not. Trust is another theme that tends to surface repeatedly in a system incapable of adequately dealing with questions related to vaccination safety.

Conclusions. Vaccination is perceived to be a controversial medical intervention. Parents require assistance when deciding whether to vaccinate their child, especially in the form of clear, concise, balanced and empathetic discussion with paediatricians. Appropriate decision-making aids would also help the process.

key words:

vaccination,
mothers,
decision-making,
thematic analysis

klúčové slová:

očkovanie,
matky,
rozhodovanie,
tematická analýza

INTRODUCTION

Given the legacy of the authoritarian healthcare system of the former Eastern Bloc, traditionally Slovak parents were not used to discussing vaccination or for that matter questioning any treatment suggested by their physician (Hnilicová, 2007). However, over time anti-vaccination movements emerged, and consequently "challenging the unchallengeable" became possible (Offit, 2011; Olpiński, 2012).

The most recent report by the Public Health Authority of the Slovak Republic (2015) indicates vaccination rates in the 2013 cohort fell generally. In 2015 the measles, mumps, and rubella (MMR) vaccination rate was lower in five regions than the 95% required for herd immunity, and an overall decrease in vaccination levels was

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recorded in 40 districts, including the capital city of Bratislava. One year later (Public Health Authority of the Slovak Republic, 2016), MMR vaccination rates among the 2014 cohort were below 95% in four regions, and 43 districts had recorded an overall decrease in vaccination levels.

Vaccination against measles, mumps, and rubella and other diseases is mandatory in the Slovak Republic; exemption is possible only in exceptional cases and when recommended by a physician (MZ SR, 2010). Paediatricians are obliged to report refusals to the relevant authorities and parents may be summoned for questioning, and a financial penalty imposed (Act No. 103/2015 Col., Article 56).

Information on health risks and parental decision-making on vaccination

How do parents decide whether to comply with the requirement on child vaccination? We know from the research that parents are exposed to anti-vaccination messages as well as to media reports of the severe consequences of not vaccinating (Austin, 2015; Opel & Omer, 2015). Before making their decision parents look for decision-making cues that would help them assess the contradictory information more responsibly (Connolly & Reb, 2012). In their research Leask et al. (2012) identified five basic groups of parents: unquestioning acceptors (30–40%), cautious acceptors (25–35%), hesitants (20–30%), late or selective vaccinators (2–27%), and refusers of all vaccines (<2%). Levels of *trust* in public healthcare institutions, practitioners, and society generally have an important influence on the process of vaccination-related decision-making (Casiday, 2005). If a paediatrician is not capable of adequately addressing parental concerns, then poor information and fear of the unknown consequences may lead to more risky decisions (Leask et al., 2012; Walther, 2011).

Leask (n.d.), from the Australian National Centre for Immunization Research and Surveillance (NCIRS), points out that people tend to think differently about health risks depending on the nature of the risk. When deciding whether to vaccinate, they need to navigate complex information. Often the information available to them is inadequate, and the information provided by paediatricians alone is not sufficient. The inadequacy arises when the information is not organized and structured in such a way that leads to a choice of action. In such cases information alone may not prompt parents to take action, and may sometimes even prevent or delay them from doing so. Decision-makers flooded with an excess of easily available yet conflicting information then tend to choose oversimplified decision-making models, for example heuristics (Connolly & Reb, 2012). Typical heuristics that parents may use when making vaccination decisions are: availability heuristics (“Vaccine-preventable diseases (VPD) will happen to me”), optimism bias (“VPD won’t happen to me”), omission bias (“I don’t want to cause harm by my actions”), anticipatory regret (“I could never forgive myself if something bad happened”), ambiguity aversion (“There is too much uncertainty”), bandwagoning (“I prefer to go along with the crowd”), free-riding (“I don’t need to vaccinate because other people do”) and altruism (“I want to protect others”) (for more see Leask, n.d.).

Trust

When the information conflicts, *trust* in the person providing the health risk information exerts a major influence on our decision (Leask, n.d.). Is the physician someone I know and trust, or an anonymous one I don’t? Am I reading about an anonymous case, or is it someone I know? Research findings (see e.g. Benin et al., 2006; Berry et al., 2017; Freed et al., 2011; Glanz et al., 2013) indicate that the most important reference person is the child’s trusted paediatrician. The process of building trust

and a positive relationship with the parent relies on the paediatrician making a targeted effort to draw on the clinical rapport (Leask et al., 2012). The vaccination literature also presumes that the physician does not simply provide parents with facts about vaccines, but considers the parents' attitudes and the values on which they are based (Hastie, 2001). Where parent-paediatrician rapport fails, parents tend to approach alternative healers or seek support on internet fora and social networks (Kata, 2010).

Emotions and experiences in parental vaccination decision-making

Emotions are an integral part of rational decision-making known as *affect heuristics*. Affective reactions can be viewed as cues for describing the value of a theme in decision-making (Slovic et al., 2007). Affective impressions are readily available, and much more flexible and effective for evaluating situations than weighing the risks and benefits, or trying to find information that supports example cases, especially in situations where the decision-making is complex and mental resources are limited (Čavojová, 2010, p. 150).

When dealing with emotions parents can also use another shortcut – *relying on social information* (Bačová, 2011; Gigerenzer & Gaissmaier, 2011). In this decision-making model parents can avoid becoming overwhelmed by information by accepting recommendations from significant others. The final decision of whether to vaccinate a child often reflects a consensus within a group of family members or friends (Connolly & Reb, 2012). Accepting a recommendation is, however, not an act of “blind faith” but the outcome of parental decision-making (Biele & Rieskamp, 2013). Parents do not accept recommendations uncritically but adaptively (ibid.) combine recommendations with *their own experience* (e.g. of their own vaccination or vaccination of the first-born child); this often become clearer to them when vaccinating any subsequent children (e.g. Brunson, 2013). Previous experience enters the decision-making process on the implicit level, often beyond conscious control, and affects the way in which decision-making stimuli are perceived and understood. (Hastie, 2001). When making a decision parents have to face the potential future consequences, and this may prompt feelings of guilt associated with making an incorrect decision (Baron & Ritov, 2004).

Let us explore the mechanism of *regret and aversion* further. Trying to avoid a potentially tragic event is one of the most basic self-preservation instincts and a key coping strategy (Roese, 2005). Once a tragic event has occurred we mentally try to avoid it by thinking about alternative scenarios. We juxtapose “counter-facts” with the actual facts. We use counter-factual thinking to prepare ourselves for similar situations in the future, simulating what might have been, or the positive or negative outcome (Ruiselová et al., 2009). We also use counter-factual approaches in relation to expected disasters or based on the tragic experiences of others. When searching online, parents can easily find cases of children with autism, accompanied by the suggestion that vaccination was the cause. Counter-factual thinking is triggered by affective emotions, generally related to failure: feelings of pity, guilt, disappointment, or anger (ibid). This enters the parents' decision-making process and affects their satisfaction with the result (the vaccination outcome vs. expectations). When making child vaccination decisions, parents combine previous experience with their desires (including possibilities, personal values, objectives, ends, etc.) and beliefs (expectations, knowledge and means) (Hastie, 2001).

There is an extensive body of literature devoted to the medical and epidemiological aspects of vaccination (Larson et al., 2014; Paterson et al., 2016), and insightful

descriptions of the various heuristics that may come into play (Leask, n.d.). The focus in psychological research is currently shifting toward *parents' understanding* of the context of vaccination and the issues they associate with it (Brown et al., 2010; Gellin, Maibach & Marcuse, 2000; LaVail & Kennedy, 2013; Sturm, Mays & Zimet, 2005). For instance a previous study explored parental perceptions of four messages used to promote vaccination (Masaryk & Hatoková, 2016).

Research aim

As child vaccination decision-making is complex and context-specific (Corben & Leask, 2016), *the research objective was to analyse the information and issues that arise when Slovak parents make vaccination decisions concerning their children.* The focus is on the themes represented in the decision-making discourse, not on the decision-making process itself. We looked at how aware mothers were about issues relating to vaccination and the messages that tended to resonate with them, how they made vaccination decisions and which resources were used. Unlike previously published studies that have focused more on paediatricians' experiences of parents (Freed et al., 2004; Kempe et al., 2011; Leib, Liberatos & Edwards, 2011; Opel et al., 2015), our research explores parental experience of paediatricians involved in the parents' decision-making process and their recommendations. It also looks at parents' own experiences of their own vaccinations under the communist collectivist healthcare system, compared to their more recent experiences vaccinating their children in a healthcare system based on shared decision-making. The research results contribute to a better understanding of the issues present in the parental decision-making process regarding child vaccination in a post-communist country.

METHODS

We collected data from four focus groups of mothers. Each focus group contained approximately ten participants. The focus group discussion took around 90 minutes.

The mothers (see Table 1) were recruited by a professional market research agency using the following criteria: participants were to have at least completed secondary school and have a minimum of one child under 5 years of age; the sample was to contain a range of income groups. The focus group contained a total of 34 mothers with a mean age of 33.7 years, and their children had a mean age of 3.7 years. Mean satisfaction with their paediatrician was 2.0 on a 6-point scale (1 representing entirely positive and 6 representing entirely negative). All the participants gave the capital Bratislava or a neighbouring municipality as their place of residence. In response to an item in the pre-focus group questionnaire 27 of the total number of participants (79.41%) identified as being pro-vaccination and 7 identified (20.59%) as being anti-vaccination.

Table 1 Focus group participants

Focus group	Number of participants	Mean Age	Children	Age of Children	Satisfaction with Paediatrician
1	10	32.7	1.5	3.5	2.1
2	8	33.4	1.5	3.6	2.0
3	8	34.4	1.5	3.1	2.4
4	8	34.4	1.6	4.7	1.6
	34	33.7	1.5	3.7	2.0

We decided to focus on mothers rather than fathers because earlier informal interviews with paediatricians had suggested it was extremely rare for fathers to bring children to new-born routine check-ups. However, our team ran a separate study looking only at fathers (Hatoková & Sedláčková, 2017). The focus groups were asked open-ended questions on the main vaccination issues, based on information gathered from studying parenting portals, social media, and mass media (Discussion forums and groups, e.g.: “What side-effects did your child experience after vaccination?”, “Moms who vaccinate”; Koubová, 2015; Sudor, 2009; Tvardzík, 2015). The list of questions can be found in the Annex.

Once the recordings had been transcribed, we conducted a thematic analysis by open-coding the transcripts using Atlas.ti text interpretation software. Throughout the process we followed Braun and Clarke’s (2006) good practice guidelines. The focus group transcripts were independently coded by two independent researchers. The researchers discussed any differences between their versions, and the final version was consensual. We compiled a code book after comparing the in-vivo codes created during the independent coding of the first transcript; we subsequently arranged the codes – organized and added to by the team – to make sure the final code book covered all the areas. Then two independent coders coded all the material using the code book. Any differences were discussed during the process. The researchers’ field notes were another resource used in the data analysis. After coding all the material, we identified the key categories to enable us to create the theoretical model (Figure 1). In the final phase, the researchers agreed on three basic categories for the mothers: 1. Trust vs. Mistrust; 2. Own Experience, and 3. The Final Decision.

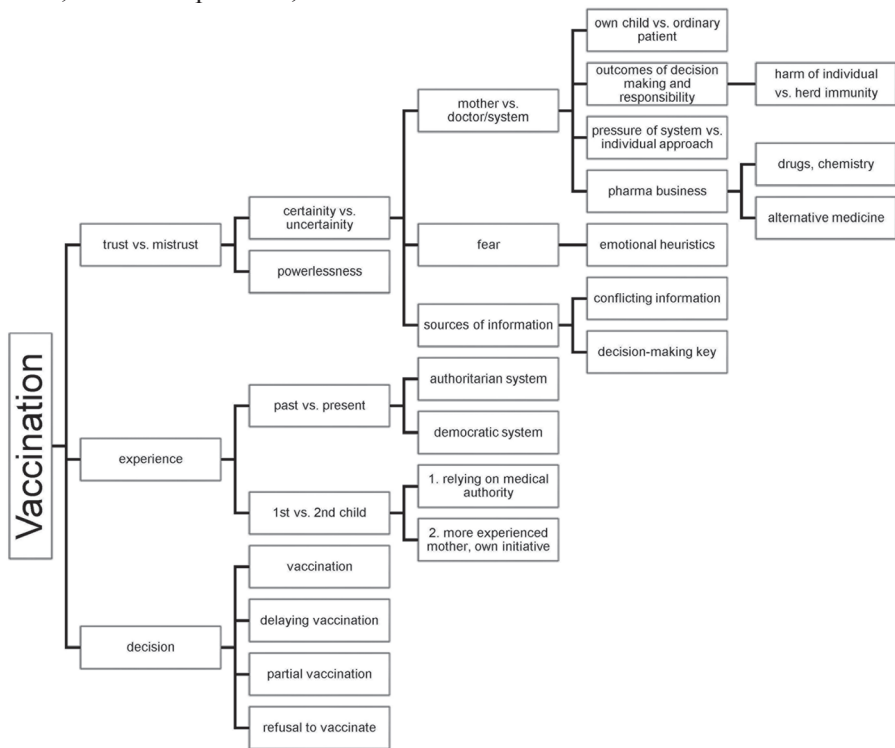


Figure 1 Theoretical model of the key categories in vaccination decision-making

RESULTS

In what follows we summarize our insights from the focus groups of mothers of small children who had undergone the child vaccination decision-making process. We present our findings in accordance with the three categories mentioned in the previous section.

Trust vs. Mistrust

The term ‘trust vs. mistrust’ refers to mothers’ utterances in which they described how their decision-making was influenced by trust (or lack of trust) in their physician, in other sources of information on vaccination, in the vaccines themselves, or in the medical system. Dealing with and preventing disease generally seem to be one of the hardest parenting tasks. There is no guarantee that the decision or attempts to protect the child’s health will have positive effects. Mothers experience feelings of trust and mistrust depending on how confident they feel when dealing with their children’s healthcare. First-time mothers repeatedly reported feeling vulnerable and needing guidance and sensitivity from their paediatrician. On the other hand, they felt mistrust when their physician was unavailable or when pressure was exerted on them to accept a suggested medical treatment or procedure. One of the mothers said:

With the first child, the mom is very inexperienced, right, she reads up on things in magazines, online, and the like. She trusts her physician fully because she thinks the paediatrician knows everything. But then the paediatrician could make a mistake, he or she could fail to make the right call, it happens. It’s happened to me several times, and the second time I learned my lesson, and I started discussing it [suggestions by physicians]. But initially I had no idea what I should be asking, who would advise me? Like, some of these situations are so unexpected, that the new mom simply has to trust the paediatrician.” (27 November, p. 7, Lea)

This extract shows how mothers become more self-confident with their second child and start to question suggestions their paediatricians make. The participant describes this process as “learning a lesson”. The narrative describes the journey from the first-time mother using trust as a coping strategy when she has little parenting and healthcare information to her becoming a critical patient. The turning points on the journey seem to be perceived mistakes or alleged wrong calls made by the paediatrician.

We also identified mistrust in situations where mothers felt that the physician was responding in a routine manner to the mother’s emotions, ignoring fears or requests for additional information. The mothers repeatedly complained about time management in routine check-ups (little time for discussion, full waiting rooms). However, trust was built when the physician displayed an interest, took a thorough medical history, allocated time for open discussion, and explained the rationale behind medical interventions. One of the mothers described it thus:

“It is difficult to concentrate because you’re dressing your child at that moment, and the physician has more patients in her waiting room, so she continues and you just can’t process it, it goes in one ear only.” (27 November, p. 4, Adela)

This extract is one of several instances where a mother described a situation during a visit to the paediatrician; feeling overwhelmed and stressed in such situation makes information-processing very difficult, even where the physician is trying to provide all the information.

The mothers welcomed it when the physician took the child’s current medical condition and medical history into account when deciding when to vaccinate. The narratives of the mothers were very similar in this regard, such as the following:

“Like, are you taking any medication at the moment? Are you still breastfeeding? Yes, I am. Do you take any medications? Yes, it’s spring time, so I’m taking antihistamines. I have to, there are antihistamines that can be taken when a mother is breastfeeding. Well, that does not matter, we can vaccinate. Or we can’t - let’s wait until winter to vaccinate. That’s how it should be - but sometimes they don’t ask and pressure you to vaccinate, it is usually like that with the MMR vaccine. I wanted to postpone it. But I was pressured into doing something I didn’t want [to do]. Like, there is no other way, no different way of doing it, no alternative.” (27 November, p. 18, Nina)

Here the participant would have preferred it if the physician had been attentive to the particular needs of the mother and child, and had not exerted pressure on the mother in this stressful situation.

The mothers generally had a thorough knowledge of the vaccines and vaccination schedules. Most of them knew when vaccinations were due and which vaccines could be problematic. All of them reported a fear of their child experiencing vaccine contraindications. Specifically, they mentioned the hexa-vaccine (against diphtheria, tetanus, pertussis, hepatitis B, poliomyelitis and *Haemophilus influenza* type b) and the MMR vaccine (mumps, measles, rubella) as being the riskiest. Five of the children of the 34 mothers in our focus groups had not had the MMR vaccine. The main reason was a fear of side-effects, especially autism which the mothers perceived to be a potential risk. Autism was most frequently mentioned (in 17 out of 34 cases) as the most feared side-effect.

All the mothers reported discussing this topic extensively, mostly informally with other mothers. Most mothers felt the healthcare system pressured them into vaccinating their child. The pressure exerted by the system was seen as being financial (penalties for non-compliance with the vaccination schedule) and social (not being accepted by pre-schools). One mother openly stated:

“It is off-the-wall to oblige parents to subject their children to something that has side-effects.” (27 November, p. 40, Veronika)

Veronika described the pressure to vaccinate as being “off-the-wall”, or in other words unorthodox, or even absurd. In her opinion the possibility of side-effects discredited the notion of vaccination.

There were also voices suggesting the need to preserve herd immunity because of children who cannot be vaccinated due to their age or immune disorders, or to safeguard against the reappearance of vaccine preventable diseases. These voices were, however, clearly in the minority and not backed by other participants – here is one example:

“It is our children who create the herd immunity.” (8 December, p. 23, Olga)

Vaccination was still stressful for mothers whose child had not experienced an adverse reaction.

They carefully monitored their children’s health before and after vaccination. When it came to general medical treatment preferences, many of them preferred natural or alternative treatments, especially in the initial phases of a disease – here is a typical example of such a statement:

“I prefer treatments that use natural products, if possible, if it is not an acute condition. At the same time I try to use as few medications as possible, unless it is necessary I try not to take medications. And I also think that the pharmaceutical industry is a big, like, business, and there is like a million medications for a single disease, even different types [of medication]. They simply do it to make people buy them [medications], and for them [pharmaceutical companies] to make money I guess.” (5 December, p. 9, Anna)

In this extract Anna distinguishes between two types of diseases – acute ones and those that may not pose an imminent danger. She admitted using natural products to deal with the latter. She tried to keep the use of pharmaceuticals to a minimum because she did not trust pharmaceutical companies.

The sources of information on vaccination available to mothers were leaflets and magazines, the media generally, and the internet. The mothers often consulted family members and friends with similarly aged children. The most trusted sources for vaccination recommendations were friends/acquaintances with medical degrees.

The anti-vaccination movement was viewed as fanatical (even by the mothers who did not vaccinate). Nonetheless, the anti-vaccination messages lead to concerns, instilling doubt, motivating people to think about side-effects, and encouraging them to seek out more information, as we can see in following statement:

“On one hand, no one wants to succumb to conspiracy theories. On the other hand, we really do not know what’s going on, and there definitely must be plenty of lobbying among pharmaceutical companies and the legislators, etc. So really, there are lots of questions we will never know the answers to, about how it really is. And this is precisely the case with vaccinations. Pharmaceutical companies definitely do lobby to make some vaccinations obligatory, because they make lots of money out of it. This does not necessarily mean these vaccinations are bad for you, but it is very difficult to understand what is what.” (4 December, p. 1, Iveta)

Here Iveta seemed to be trying to find the middle ground between two extremes – succumbing to conspiracy theories or blindly trusting the pharmaceutical industry. Although she clearly distanced herself from those viewing the pharmaceutical industry as a conspirator and admitted that pharmaceuticals had many benefits, the extract indicates a certain level of mistrust toward the pharmaceutical business. This seemed to be the prevailing stance among most of participants – pharmaceuticals were seen as progressive and medical advances were welcomed, but it was necessary to be careful and critical when agreeing to medical interventions because of various non-medical vested interests.

Experience

The theme ‘experience’ refers to mothers’ utterances in which they described how their decision-making was influenced by experience, including either their own personal experience of vaccination, or experiences related by their friends, social media contacts, as well as their parents. When asked about their experiences, the mothers spoke of differences between the present-day approach to vaccination and that of the past. They often recalled coming back from school with vaccination marks because vaccinations were implemented *en masse* to all schoolchildren, without parental consent. Opting-out was not possible. Our participants were therefore not able to seek advice from their own parents and had to rely on other resources. This generation gap was reflected on by one participant:

“I have a feeling that our parents’ generation, they were not used to navigating the immense amount of information. They were just used to getting information, they either trusted it or at other times knew it was nonsense – like the communist propaganda – but they never had access to this much information [as we have today], and in a certain sense they get confused. Even we get confused, but I’ve kind of got used to the feeling of being confused [laughs]. For them it’s a much bigger shock. There’s too much information so you don’t really know what to trust.” (4 December, p. 7, Iveta)

For this participant confusion was an integral part of decision-making, unlike in the past when things had been more simple (she thought that under the authoritarian

regime all one had to do was distinguish the communist propaganda from the credible information).

All the participants had at least one child, and some of them had more; their approach to vaccination often evolved over time and with each additional child. In the first weeks following childbirth, mothers typically relied on the authorities and the paediatrician's recommendations, and, save one exception, all our participants had had their first-borns vaccinated.

Having experienced side-effects (themselves or those of their friends' children) or having disagreed with the suggested course of treatment, some mothers started to lose trust in their paediatricians. It was thus more likely that mothers would choose not to vaccinate the second child (two mothers out of the participants) or not to give the second child the MMR vaccine (one mother) or delay vaccinating the second child (one mother). Two mothers did not take their second child to get the optional vaccinations (accepting just the mandatory ones) despite their first-borns having had all the vaccinations. Almost all the mothers with multiple children had more elaborate arguments and seemed to have less formal respect for the medical authorities – as the following quote shows:

"With the second one I was more careful. I knew I could make my own choices, and when the doctor said that something was good, that didn't mean it was actually good for my child. I knew I had to take more responsibility. With the first child I had been in a state of shock, I just believed the doctor on everything, but with the second child I was more careful." (4 December, p. 5, Natália)

Natália described becoming more self-confident in her dealings with physicians when she had her second child. She was able to take more responsibility and not rely so much on the authorities. Her story was quite typical of our participants' narratives.

Making Decisions about Vaccination

The theme 'Making Decisions about Vaccination' refers to mothers' utterances in which they described the decision-making process: the different strategies or heuristics they employed when deciding whether to vaccinate the child. As we suggested above the decision-making part of the whole process was marked by mistrust, confusion, and uncertainty. Mothers consistently reported being uncertain about the possible consequences of their decisions. They seemed to rely on various heuristics to overcome this unease. Following the work of other researchers (e.g. Leask, n.d.; Hertwig & Hoffrage, 2013) we identified heuristics in our participants' narratives which seem to have shaped the decision-making process. Each of these heuristics is illustrated by a sample statement from our transcripts:

"Trust your doctor" heuristics

Physicians should be trusted and their orders should be followed. In this extract Alena identifies this as a strategy that was used more in the past: *"And it may just be, because of the way we were brought up, in the sense that if the doctor says something, then that's how it is, and why would anyone question it?"* (27 November, p. 33, Alena)

The availability heuristics ("negative things always happen to me")

This extract shows how an acquaintance overestimated the chance of negative side-effects: *"Well, she [an acquaintance] said she was afraid of side-effects. And she told me her little one was five months old. A beautiful, healthful, laughing boy. And she was afraid [that after vaccination] he would start crying a lot. She'd heard that children stop sleeping well, and what not. If someone has images like these in their mind, and are voluntarily entering into something like this, it's very upsetting. And we do this for a higher goal, so they don't contract those bad diseases, but well, hey, if I think those*

diseases aren't around anymore, than why should I consciously expose my child to the risk that starting from an arbitrary day in my diary my child won't sleep for a week? That really would indeed be a most upsetting experience." (4 December, p. 10, Iveta)

The risk of side-effects outweighed the benefits of preventing the long disappeared disease. Cases of negative side-effects can be seen more readily around us than examples of diseases such as mumps, measles, or rubella.

The optimism bias ("negative things will not happen to me")

Here an attempt is made to neutralize negative messages by stating that severe side-effects are rare and unlikely to affect the child. In this extract Alexandra ended the issue by arriving at the conclusion that nothing would happen to her child: *"I read some opinions [on the internet] that simply said MMR causes autism. I also read contrary opinions, but they would not rule it out completely, they said there was no proof. And then I stopped reading and said, nothing will happen to us and that's it!"* (4 December, p. 12, Alexandra)

The tendency to procrastinate ("I do not want my decision to cause harm")

This extract describes different techniques for postponing vaccination, in this case indefinitely – Adela seemed to accept that her child would be vaccinated; however, she wanted to delay it as much as possible: *"Luckily after the first vaccination everything was fine, there was no adverse reaction. Now he has had his third vaccine, we had two very bad nights, it must have been caused by the vaccination, I know that. And now we're supposed to get the MMR shot. I am not sure why she [the paediatrician] wants to do it so soon, in the 14th month. I'm not going to comply, I won't go [laughs]. It's scheduled for before Christmas, like December 18. I won't even let her know, I just won't show up, and I'll see her in January and try to ask her to do it later. But I am not sure when."* (27 November, p. 18, Adela)

The anticipated guilt ("I would never forgive myself if anything bad happened")

This participant used the metaphor of a burden – one has to live with the possible negative outcomes of the decision whether to vaccinate: *"And this burden is on me as the parent. If I decide one way things may go wrong. But if I decide the other way things could also go wrong. And I'll have to live with it my whole life."* (27 November, p. 44, Alena)

The ambiguity aversion ("too much uncertainty")

It was quite typical for participants to rely on a relative or friend with a medical degree – the family or friendship bond seemed to act as a guarantee against harmful advice. Iveta mentioned being offered contradictory advice by different professionals which created ambiguity and the feeling that "there is no holy truth"; one has to weigh the pros and cons of different approaches, but there is no ultimate answer: *"I trust physicians, but as I mentioned earlier my physician doesn't usually have that much time to go through the details, and maybe she is too biased, I would say. I don't have many physicians in my social circles, but what would give me the most trust would be to sit down informally with a physician and have a talk. And as I also mentioned, my mother in law, a former paediatrician, I do trust her, but she hasn't practiced for years. I always consulted her and she consulted a friend who still has her own paediatric practice. I would ask, should we get such and such a vaccination? And the answer was, you don't have to get these shots, but get these other ones. And that happened two or three times, and then I realized, ok, they tell me not to get some shots, but other things come into play, and they may not be intentionally biased, but their personal attitudes do come into it. Finally, it's not like there is some holy truth out there that we have to discover. In the long run there is no holy truth. It's like... like we can't know, or that we always have to consider the risks on one side and then*

on the other side, and you just can't get to the bottom of it completely." (4 December, p. 6, Iveta) This extract is a fine example of the mix of emotions: trust exists alongside doubts and suspicion (the physician is biased; the relative no longer practices) and creates an overall feeling of uncertainty.

Bandwagoning ("going with the crowd")

The narrative refers to exposure to different sources of information (social media, a friend, a physician, a book by a healthful lifestyle author). Adela finally decided that years of medical development could not be wrong so she decided to go with the crowd: *"I had doubts whether I should vaccinate. Well, I am not the type to surf the internet from dusk till dawn. I don't like it, not even Modrý koník [the local parenting portal], I don't read these things. But I have a female friend who studies it extensively, and she was against vaccination, so she would push these tendencies, and I had a bit of a discussion with my physician about it, plus I had the book by Bukovský [a local healthful lifestyle author]. The book has a chapter on vaccination. I read it and came to the conclusion that I wouldn't bear responsibility for deciding against a medical development that has been going on for a number of years."* (27 November, p. 18, Adela)

Altruism ("by vaccinating my child I protect those children who cannot be vaccinated")

Iveta explained that vaccinating your own child protected other children who may be more vulnerable; in addition she also made the herd immunity argument: *"But then I said to myself, like ok, there are some children around who shouldn't be vaccinated because they run a great risk of being harmed by it, but this makes it even more important for all the others to get vaccinated. Because this is a different thing. The point of vaccinating is to make sure it doesn't occur in the population."* (4 December, p. 10, Iveta)

Free-riding on herd immunity

Although Veronika did not explicitly mention free-riding, it was implicitly present in the argument made by her acquaintance that the risks of contracting a vaccine-preventable disease were smaller than the risks of side-effects because of herd immunity: *"...and he said he's also a statistician, so he said the risk of contracting the disease and having a bad experience with complications is smaller than the risk of the negative side-effects from the vaccination, so the decision was made."* (27 November, p. 33, Veronika)

We also identified the following four approaches in keeping with Herzlich, 1974; Finucane et al., 2000; Slović et al., 2007; Ruiselová et al., 2009; Coulter & Collins, 2011; Gigerenzer & Gaissmaier, 2011; Ramsey & Marcinski, 2011: "take the best" heuristics, relying on social references, affect heuristics, and counter-factual thinking:

"Take the best" heuristics (betting on one good reason)

Although there were many opinions, one couple decided to vaccinate because it was less risky; it seems their fondness for travelling played a significant role in the decision-making process. As this statement shows: *"I read up on opinions that were for and against it. Me and my partner talked about it, and through logical analysis and common sense we arrived at the conclusion that we would vaccinate. I even chose some optional vaccinations – rota viruses, and next week we are getting Hepatitis A shots since we travel a lot and we're planning on taking the little one on the road so he should be protected when travelling to foreign countries. Because I trust this more. There are certain risks, some risks that point against vaccination, but I think we chose the less risky path."* (4 December, p. 1, Alexandra)

Relying on social references

Trust was an issue for Anna when assessing the credibility of different social references - medical professionals who were also family members and friends proved to be the most trustworthy: *"We once agreed we wouldn't vaccinate because of our friends, they didn't completely discourage us, but told us of their bad experience. But then I told myself, we have a physician in our family, and they vaccinated all their children. And I trust them. And there was another friend, also a physician, she was also for it, so I trusted these doctors more. Because I didn't want to accept the responsibility of not doing it, and then have bad things happen."* (5 December, p. 29-30, Anna)

The affect heuristics (emotions influence decisions)

In this extract Alica mentioned her emotional reaction to finding ticks on her child which immediately led her to change her mind and vaccinate her son: *"I was also against it. But then on the third day I found like four ticks on my son's head, and I really got hysterical. I admit, I remember it exactly now. But I had him vaccinated."* (4 December, p. 9, Alica)

Counter-factual thinking

In this extract the mother was considering changing her initial decision, which was to vaccinate their second child just as she had their first-born. Although she did not entirely change her mind, Nikola considered what might have happened had it not been for social pressures – she most likely would not have vaccinated: *"With the first one we followed the calendar, and it was a total catastrophe. A very bad experience, being admitted to hospital. Then we started to take homeopathic remedies before and after vaccination, and with the firstborn we only had one extra vaccine and that was for tick-borne encephalitis. Never again, a complete catastrophe, my child changed completely! We are also vaccinating our second-born, but we are postponing the vaccination by one year. I'm really against it. If it wasn't for these pressures I wouldn't even have him vaccinated, not a chance. Maybe if it was in reaction to something, I don't know, a big scare... but I'm basically very opposed to vaccination."* (8 December, p. 1, Nikola)

In summary then the most likely outcome of the decision-making process was vaccination/partial vaccination (mandatory vaccines only) or delayed vaccination/adjusted timetable (especially in relation to some preconditions). Three mothers did not vaccinate at all, and two did not vaccinate their second child.

DISCUSSION

Our participants recognized that patient care and medical treatments are undergoing transformation. These changes are fundamentally challenging the authoritarian nature of medical expertise. This is also giving rise to a new type of patient (or parent of child patients) who is better informed and actively seeks out information. The shift away from medical paternalism and the increasing availability of information online greatly challenges asymmetries in information access. The breadth of information, however, tends to create confusion (see also the sociological point of view by Hasmanová Marhánková, 2014).

Slovak mothers can no longer rely on their parents' opinions and recommendations because they dealt with child vaccination under the communist collectivist healthcare system. This makes it difficult to cope with the pressure of uncertainty that is part of complex decision-making regarding the child's health (Corben & Leask, 2016). In our focus groups the mothers recognized this and repeatedly stated it had had been simpler in their parents' day.

The insecurity in complex decision-making on child health issues can lead to decision-making shortcuts and these were evident in our research. Mothers searched for adequate decision-making cues that would help them navigate the information and make informed decisions (Connolly & Reb, 2012). They also expressed the need for more comprehensible and credible communication on the benefits and risks of vaccination that did not steer away from sensitive areas. They thought experts (e.g. physicians) should be aware that parents are only interested in what is best for their children (Benin et al., 2006; Walther, 2011). Parents focus on finding out what is best for their children, regardless of what medical authorities think. Mothers who had already had their first child and had gone through the experience of child vaccination provided more elaborate arguments and their decision-making was notably more self-conscious compared to that of first-time mothers (this is similar to observations by Brunson, 2013 and Biele & Rieskamp, 2013).

The values that entered into the mothers' decision-making processes (cf. Hastie, 2001) were a preference for natural-based treatments over chemically synthesized medicines. These were favoured because they are natural, place less of a strain on the body and are widely available. A classic study of representations of health (Herzlich, 1974) noted that participants often represented health as being inside the body while diseases are construed as being the result of an external attack on health (for example a polluted environment, or an unhealthy lifestyle). Medicines seem to be a part of this external world and their use is seen as an extreme form of interference. The positive effects of medicines (and vaccines) are taken for granted (they must be effective), yet there are very negative emotions regarding the side-effects.

Probably the same line of thinking contributed to participants' views that seasonal vaccinations were unnecessary if basic hygiene was observed as it should be enough to protect people against vaccine-preventable diseases (similar to Ramsey & Marczynski, 2011; Zottarelli et al., 2012). Generally the mothers in our study were well-informed about the recommended schedule for obligatory vaccination, types of vaccines, and their side effects. However, even mothers who decided to vaccinate were afraid of contraindications. They therefore responded well to paediatricians conducting an anamnesis and considering the present medical condition of the child before vaccination, and this was especially true if they performed a family anamnesis and looked at potential hereditary predispositions. A feeling of trust was generated between the mother and paediatrician in the following instances (see also Hatoková & Túnyiová, 2015):

- When the physician exhibited understanding and patience when providing relevant information, and did not try to manipulate using fear;
- When the physician was able to address the needs of the mother, namely by recognizing the need to sustain and improve the health of the child, and appreciated the uncertainty parents faced when making vaccination-related decisions;
- When the physician was able to address and react to the needs of the child, for example when experiencing discomfort during vaccination (vaccinating the child in the mother's arms), or tried to minimize the risk of potential damage caused by side-effects;
- When the physician allocated time for discussion (for example through efficient patient management), set aside ample time for consultations, and gave reasons as to why vaccination was medically legitimate.

The statements made by the mothers in our focus groups correspond to the communication strategies recommended for use by paediatricians when discussing vaccination with parents. These communication skills could be acquired by any paediatrician. It

seems that trust is built through acknowledging the emotions, fears, and experience of the parents, using simple yet truthful statements, asking open-ended questions, listening carefully, recognizing that the parents care for the child, providing enough relevant information, and double-checking whether parents have understood the main messages (Leask et al., 2012; Jacobson, Van Eta, & Bahta, 2013; Shendurnikar & Thakkar, 2013; Hatoková & Bašnáková, 2017). When the physician discusses vaccination with the parent, the aim is not only to provide information, but to consider the parents' emotions (e.g. existing or anticipated anxiety, fear, and potential guilt) because it is these emotions that are behind the seemingly illogical choices parents make.

It was found during in-depth interviews (more in Bašnáková & Hatoková, 2017) with 15 Slovak paediatricians that they considered today's parents to be more anxious than previous generations of parents – and not only when it comes to vaccination. The participants gave different reasons for this: ranging from lack of medical education in parents and the availability of conflicting medical information that causes uncertainty and makes decision-making more complex to the general chaos and fear that may affect parental skills. In their extreme manifestations this uncertainty and fear may result in anger and hostility toward the paediatrician, or on the contrary, in co-dependence on the physician. That research also showed paediatricians thought most parents formed a more trusting relationship with their paediatrician and developed increasing parental self-confidence as the child grew older, and that parents handle their second and later children's medical issues differently. Senior physicians (20+ years of clinical practice) find it difficult to cooperate with parents who consider vaccinations a problem. Most senior paediatricians have first-hand experience of vaccine-preventable diseases, and strongly believe that vaccination is necessary to maintain the health of children. Such physicians often end up recommending that parents who are unwilling to accept vaccination should switch to another professional (*ibid.*).

One potentially useful act could be to adopt the principle that the priority in vaccine-related communication is not to compromise the parent-paediatrician relationship (Berry et al., 2017) and to remain open to parental decisions changing over time. Such changes could be related to altered circumstances, for instance the parents deciding to travel abroad or a local epidemic (Bašnáková & Hatoková, 2017). The challenge is not to encourage a specific choice or decision, but to balance and explain the benefits and risks while providing the family with a qualified recommendation. A practical form of assistance could be to create a check-list for parents to fill out; the check-list could then serve as a shared decision-making aid and a recommended trustworthy information resource (Austvoll-Dahlgren & Helseth, 2010).

Limitations of the study

We recognize that the research has some general limitations: the sample is small and selected from one city, and contains mothers only. It is a general sample of the population so the proportion of anti-vaccination proponents is small. We have addressed these limitations by conducting separate studies focused solely on parents who have refused to have their children vaccinated. We also ran a separate study of fathers. There remains the challenge of designing a nationally representative survey, and bringing the two projects on the parents and paediatricians together through a comparative study.

CONCLUSION

In a busy paediatric practice, it is necessary to carefully consider what is important in the relationship between the physician and the patient's parent.

It is vital for the paediatrician to be aware of all the factors that come into play when parents make decisions and are faced with a world of ambiguous and contradictory information.

The mothers often reported feeling vulnerable, insecure, and pressurized as well as isolated and having to make the decision without the support of the previous parenting generation. In that situation they stated that what they required was a clear, balanced, and empathetic discussion with their paediatrician and the proper decision-making aids that would help them make (truly) informed decisions about their children's health (Coulter & Collins, 2011).

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ANNEX: GENERAL OUTLINE OF QUESTIONS

A. Vaccination in general

What comes to your mind when you hear the term "vaccination"?

What do you associate with vaccination?

B. Relationship with physicians and the pharmaceutical industry

Have you ever engaged a paediatrician in discussion regarding their conclusions or diagnoses?

What is your opinion regarding the medical/ pharmaceutical profession?

C. Own Experience

Please think about your own vaccinations - what was your experience?

How did you react the first time your paediatrician introduced the topic of vaccinating your child?

How did your paediatrician inform you about your child's vaccinations?

Did you collect any additional information?

Do you have any experience of non-mandatory vaccinations?

D. Experience of Others

What was the role of the child's father in making vaccination-related decisions?

How did your parents, significant others or peers react?

Do you know anyone who has suffered from a vaccine-preventable disease?

Do you know people who made vaccination decisions similar to yours?

Did anyone encourage you to vaccinate or not to vaccinate? What were their arguments?

Do you recall any controversial information regarding MMR vaccines?

E. Debriefing

Is there anything else you would like to add?

Did the discussion raise any questions that you need answering?

How did you feel about this discussion?

SÚHRN

Ako vnímajú slovenské matky očkovanie detí: analýza fókusových skupín

Problém. Počet odmietnutí očkovania na Slovensku rastie. Do augusta 2012 bolo zaznamenaných 1291 prípadov odmietnutia očkovania. Do augusta 2013 tento počet narástol na 2595 prípadov. Cieľom tejto štúdie je zmapovať témy a heuristiky, ktoré vstupujú do rozhodovacieho procesu rodičov o očkovaní ich detí.

Metóda. Autori zrealizovali štyri fókusové skupiny s matkami malých detí do 5 rokov (N = 34). Dáta prepísali a analyzovali softvérom pre kvalitatívnu analýzu metódou tematickej analýzy.

Výsledky. Matky prvého dieťaťa často uvádzali tlak urobiť rozhodnutie ohľadom vakcinácie v stresujúcom kontexte novorodeneckých prehládok. V takýchto podmienkach matky siahajú po heuristikách v rozhodovaní a rozhodnutie robia pod vplyvom strachu. Autori popísali niekoľko heuristik, ktoré môžu zohrávať rolu v procese rozhodovania.

Diskusia. Rodičia sa snažia vybalansovať potenciálne riziká očkovania ako aj neočkovania. Opakovane sa vynára téma dôvery v systém, ktorý často nie je schopný vhodným spôsobom odpovedať na otázky týkajúce sa bezpečnosti očkovania.

Záver. Očkovanie vnímajú mnohé participantky ako kontroverznú medicínsku intervenciu. Rodičia potrebujú pomoc pri rozhodovaní o očkovaní svojich detí, najmä formou jasnej, stručnej, vyváženej a tiež empatickej diskusie s pediatrom. Pomôcť rozhodovaciemu procesu by mohli vhodné rozhodovacie pomôcky.

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